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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,186	04/12/2004	Saleh A. Elomari	210540US (4081-06300)	4046
37814 7590 09/25/2007 CHEVRON PHILLIPS CHEMICAL COMPANY 5601 Granite Parkway, Suite 750 PLANO, TX 75024			EXAMINER NGUYEN, TAM M	
			ART UNIT 1764	PAPER NUMBER
			MAIL DATE 09/25/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/823,186

Applicant(s)

ELOMARI ET AL.

Examiner

Tam M. Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4 and 6-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4 and 6-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Terminal Disclaimer

The terminal disclaimer filed on July 2, 2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S Patent No. 6,720,468 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Amendment

The rejection of claims 1-23 under 35 USC § 102(b) and 103 over Brown (U.S 5,300,126) is withdrawn by the examiner in view of the amendment filed on July 2, 2007.

Since a new non-final rejection follows, Applicants' arguments will not be addressed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-2, 4, 8-10, and 13- 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. (U.S 5,300,126) in view of either Stuckey (U.S. 3,043,891) or Louis et al. (U.S 3,773,844) or Ho (5,062,866) or Brinkmeyer et al. (U.S 5,220,091)

Brown discloses a method for removing dienes (e.g., butadiene) from a mixture comprising alpha-olefins (pentene-1) by contacting the mixture with dienophiles such as maleic anhydride to produce a product mixture of olefins and Diels-Alder adduct. The mixture is then separated into a diene free stream and a stream comprising dienes and maleic anhydride. Since the dienophile and the adduct of Brown are similar the claimed dienophile and adduct, it would be expected that the dienophile and adduct do not mix homogeneously as claimed. (See abstract; col. 2, line 43 through col. 4, line 34; col. 9, lines 8-10; examples 3)

Brown does not specifically disclose the step of separating Diels-Alder adduct from the product mixture employing the methods as claimed such as membrane or filter.

Stuckey, Louis, Ho and Brinkmeyer teach a separation process for separating mono-olefins from a hydrocarbon mixture by using a membrane.

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Brown by separating the adduct from the product mixture as claimed by using a membrane that is taught by either Stuckey, Louis, Ho or Brinkmeyer because a membrane is capable of separating mono-olefins from a hydrocarbon mixture and Brown teaches that any known separating means can be used to separate the reaction effluent. Consequently, it would be expected that the modified process of Brown would provide a product stream that contains the claimed amount of conjugated olefins because of the similarities between the modified process of Brown and the claimed process in terms of dienophiles and separation means.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Brown by operating the process under conditions to results in two phases as claimed because it is within the level of one of skill in the art to operate the process at any effective conditions including the conditions that result in the phases as claimed and it would be expected that the results would be the same or similar when operating the process at either gas phase or liquid phase.

Brown does not disclose that the olefinic feed mixture is bubbled through the liquid Diels-Alder dienophile by form Diels-Alder adduct. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Brown by bubbling the feed through the liquid dienophile as claimed because Brown teaches that the process is operated at a temperature of from 0 to 200° C and the feed includes light olefins having 4 carbon atoms. At the operating temperature of from 0 to 200° C, a light olefinic feed

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can be at either gaseous phase or liquid. Therefore, it is within the level of one of skill in the art to operated the process in either liquid phase or gaseous phase as claimed.

Brown does not specifically disclose that the adduct arrested about concurrently or immediately following the formation of the adduct. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Brown by arresting the adduct as claimed because it is within the level of one of skill in the art to arrest the Diels-Alder adduct any time during the process including about concurrently or immediately following the formation of he Diels-Alder adduct.

Claims 1, 6, 7, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. (U.S 5,300,126) in view of Marchesseault et al. (U.S 6,132,600).

The process of Brown is as discussed above.

Brown does not specifically teach the use of a filter to remove solid adducts from the product stream.

Marchesseault teaches a filtering system to separate solids from a liquid mixture wherein the filter comprises alumina. (See col. 2, lines 33-39; col. 7, lines 30-34)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the Brown by utilizing a filtering system to remove the adduct from the product stream by using a filter system as suggested by Marchesseault because such filtering system is effective to separated solids from a liquid mixture.

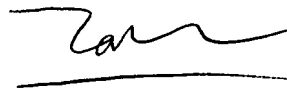
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tam M. Nguyen whose telephone number is (571) 272-1452. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tam M. Nguyen
Examiner
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TN